

User Manual

TeraStation

HD-HTGL/R5



Congratulations on your new TeraStation! This user manual is intended to assist you in configuring it. If you run into difficulties or need additional help, feel free to contact our 24/7 Technical Support at (866) 752-6210 (USA & Canada only). Technical Support in Europe is available between the hours of 9am - 6pm (GMT) Monday through Thursday and 9am-4:30 pm (GMT) Friday for this product. Customers in Europe can obtain Technical Support using the following information: Email: helpdesk@buffalo-technology.ie | Web: www.buffalo-technology.com

This user manual uses images representative of TeraStation user interfaces and software. Because we're constantly updating our product, the images and text in this manual may vary slightly from the images and text displayed by your TeraStation. These changes are minor and should not affect the ease of setup adversely. As time passes, future user interfaces, updated software, and later versions of this manual may be available for download at our web site: www.buffalotech.com.

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Begin setting up your TeraStation by plugging your *power cable* and *Ethernet cable* into the back of the TeraStation as shown.

Connect your cables



Plug the *power cord* into a 120 volt wall socket.

Plug the other end of the *Ethernet cable* into a hub, router, or switch in your network.





Make sure that the power switch on the rear of the TeraStation is in the *ON* position, with the “I” symbol pressed down.

Press the *power button* on the front panel. The LEDs will swirl as your TeraStation boots up.



After your TeraStation has completed booting up and the LEDs have ceased to swirl, check the *LINK/ACT LED* on the front of the TeraStation. If it's lit, then your TeraStation is connected properly, and you can go on to *page 8*. If it's not lit, turn to *page 7* for troubleshooting.

The TeraStation's Ethernet port will automatically adjust to use either a Crossover or Patch cable, so you may connect the TeraStation to your network with either type of Ethernet cable. Buffalo Technology doesn't recommend connecting the TeraStation directly to a PC.

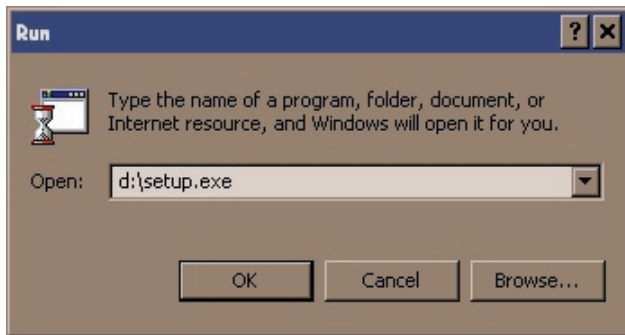
Verify that the *LINK/ACT LED* on the front of TeraStation is lit (see *page 6*'s picture). If it's lit, go to *page 8* to continue setting up TeraStation. If the *LINK/ACT LED* is still not lit, try the suggestions below to verify that you're not suffering from common setup problems.

Having problems? Make sure that:

- the TeraStation and the router, hub or switch are both powered on,
- the Ethernet cable is securely plugged in at both ends, and
- the Ethernet cable is not damaged. Verify this by trying a different Ethernet cable.

If problems persist, contact our 24/7 technical support at (866) 752-6210 (USA & Canada only). Technical Support in Europe is available between the hours of 9am - 6pm (GMT) Monday through Thursday and 9am-4:30 pm (GMT) Friday for this product. Customers in Europe can obtain Technical Support using the following information: Email: helpdesk@buffalo-technology.ie | Web: www.buffalo-technology.com

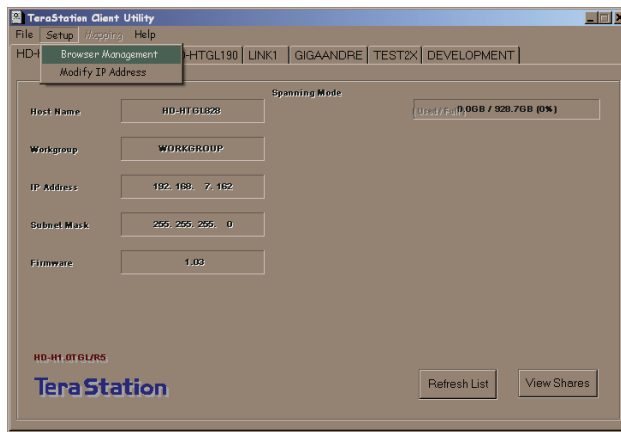
Insert the TeraNavigator CD into your PC's CD-ROM drive. Setup should automatically launch. If it does not, manually launch setup.exe by pressing the *Start* menu and selecting the *Run...* option. When the *Run* dialog opens, type **d:\setup.exe** (where d is the drive letter of your CD-ROM drive). Press *OK* to continue.



TeraNavigator is now running. Please press the *Install Client Utility* icon, and then *Start*. When installation is finished, press *Launch*.



The *TeraStation Client Utility* allows you to easily configure TeraStation's network settings. The tabs show the names of available TeraStations. If you have more than one TeraStation on the network, click the tab of the one you want to select it. While a TeraStation's tab is selected, its *IP Address* is visible and the *View Shares* button will take you directly to its network shares and folders. See *page 66* for more information on *TeraStation Client Utility*. For now, make sure that the proper TeraStation's tab is selected, click *Setup*, and choose *Browser Management*.



This login prompt will appear. Enter **admin** for the user name. Until you change it, the password for the admin account will be **password**. Press the **OK** button when finished.



Enter Network Password

Please type your user name and password.

Site: 192.168.1.103

Realm TeraStation

User Name admin

Password [masked]

☒ Save this password in your password list

OK Cancel

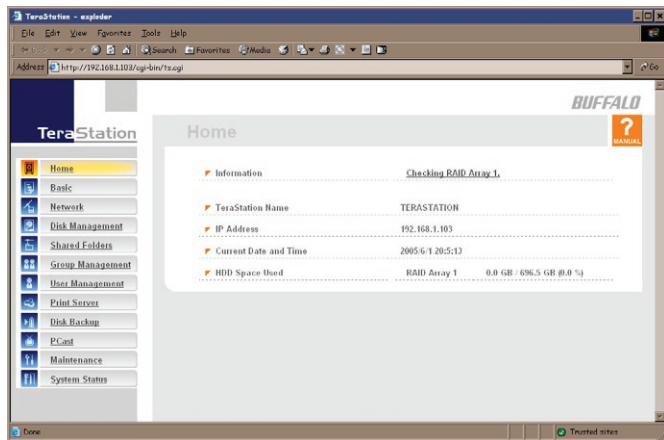
User name: *admin*

Password: *password*

See *page 44* to change your password. If you've forgotten your password, see *page 60*.

If this login prompt does not appear, your DHCP server may not be functioning correctly. If DHCP is disabled, you may re-enable it, or verify that the TeraStation's IP address (*page 10*) is in the same range as that of your PC. See *page 66* and *page 67* to manually configure your TeraStation's IP address if necessary.

You are now logged in to the TeraStation Management Utility. *Bookmark* this page in your browser so it can be easily accessed for future configuration changes. You can also get here by typing `http://TERASTATION_NAME` into a Web browser, where TERASTATION_NAME is the name of your TeraStation that you set on *page 13*. For detailed explanations of each menu and setting, please refer to the *Advanced Settings* section (starting on *page 24*) of this manual. To continue setup, click on the *Basic* link on the left side.



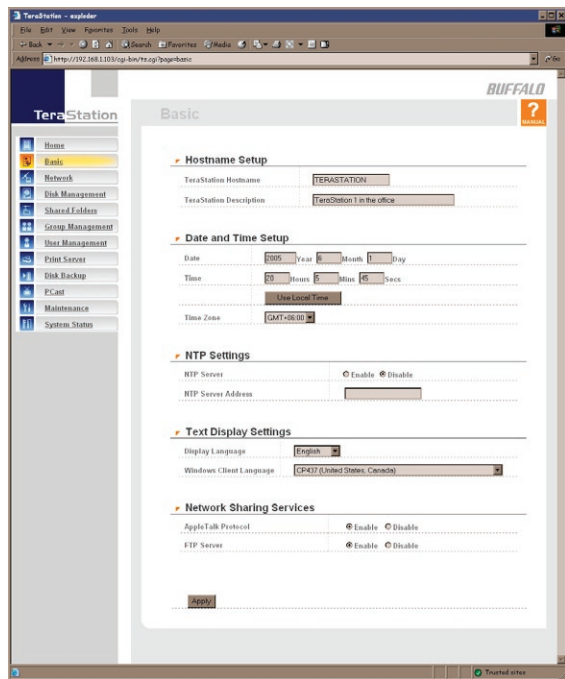
Here on the *Basic* page, begin by changing the name of your TeraStation in the *TeraStation Hostname* field. A friendly, easy-to-remember name is recommended. The name cannot contain any spaces or special characters. Alphanumeric characters, hyphens, and underscores are allowed.

A short description of the TeraStation can be entered into the *TeraStation Description* field. You'll then see this description in Network Neighborhood on Windows machines.

Make sure that the date and time are correct in *Date and Time Setup*. To synchronize clock settings with your computer, press *Use Local Time*.

Once desired fields have been completed, press the *Apply* button at the bottom of the page.

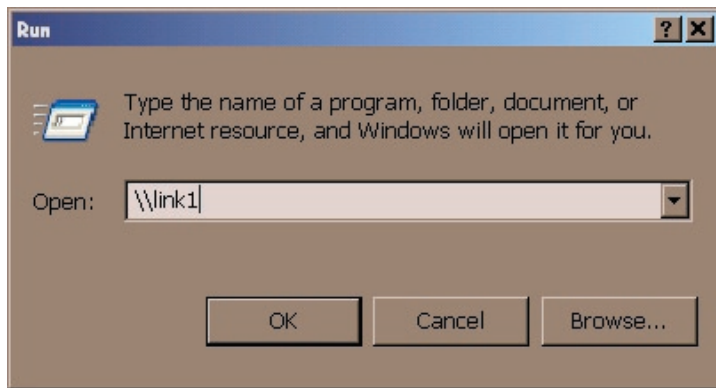
For more information on the *Configuration Utility*, turn to *Advanced Settings*, beginning on page 24.



Congratulations! You've completed basic setup. For more detail on the other settings available in your TeraStation, turn to *Advanced Settings*, beginning on *page 21*.

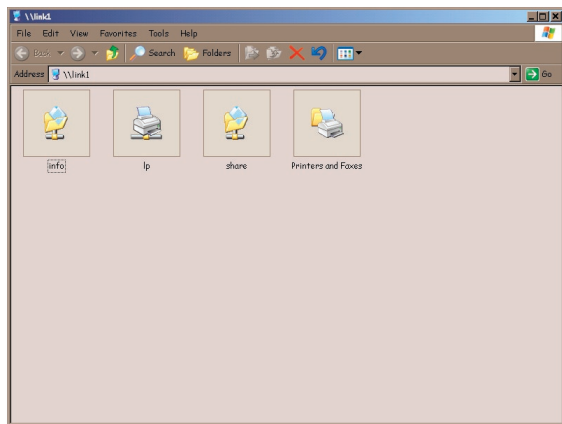
To access TeraStation data:

Press the *Start* menu, select the *Run...* option. When the *Run* dialog opens, type **\\TeraStation_Name** (where "TeraStation_Name" is the TeraStation Hostname set on *page 13*). Press the *OK* button to continue.



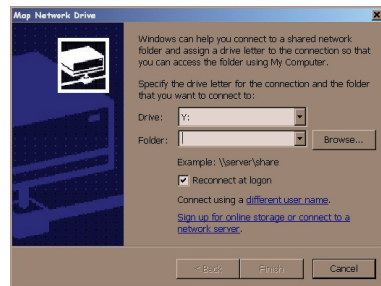
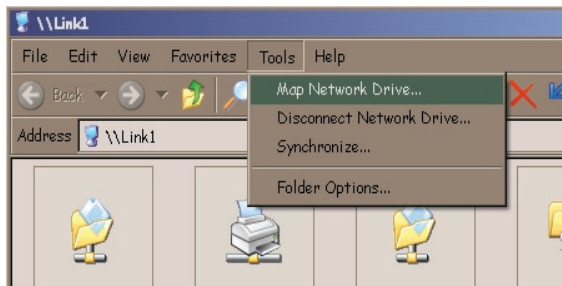
TeraStation's root directory will appear. You will see all of the configured shares, including *share*, the preconfigured data folder. All users can read and write to all folders unless otherwise configured. To set up security and password protection, or add other shares to your TeraStation, please refer to *pages 38 - 41* of this manual. To change your RAID configuration, see *pages 28 - 31*. To setup a printer see the *Printers* section beginning on *page 47*. Drive letters can also be mapped to shares on your TeraStation; see *page 16* for more information.

Note: If this page does not appear, or if you receive a popup window from your firewall saying that a NetBios Session has been blocked from your TeraStation's IP address, you will need to add your TeraStation's IP address to your firewall's trusted zone. You can get your TeraStation's IP address from the *TeraStation Client Utility* (see *page 10*). Consult your firewall documentation for more information on allowing network access to and from a specific IP address.



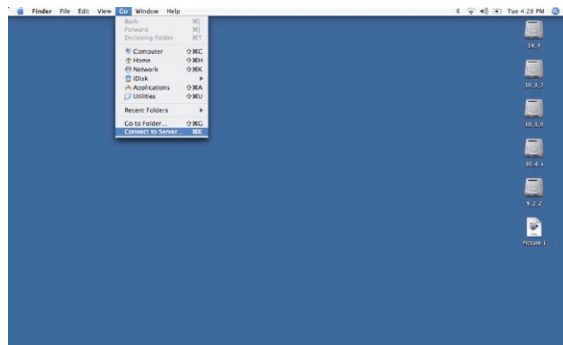
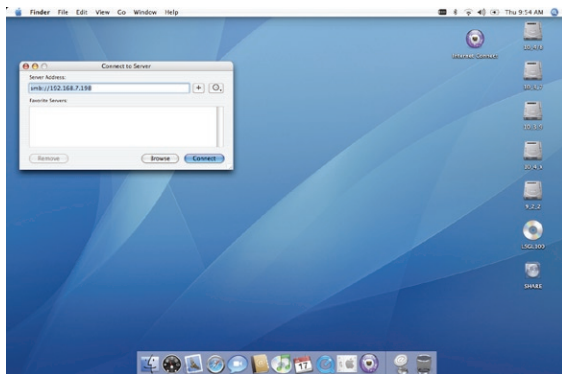
Accessing TeraStation Data from a PC

From the TeraStation's *Root Directory* screen (see *page 15*), click the *Tools* pull down menu and select *Map Network Drive*; Map Network Drive will run. Select the drive letter you would like to map from the *Drive:* pull down menu. Enter **\\TeraStation_Name\share_name** in the *Folder:* field, where *TeraStation_Name* is the *TeraStation Name* set on *page 13* and *share_name* is *share* (if you're mapping to this preconfigured folder) or the name of another shared folder that you set up on *page 38*. You may browse for a shared folder by pressing the *Browse* button and searching through the *Entire Network* and then the *Microsoft Windows Network*. Check the *Reconnect at logon* checkbox to have Windows connect to this mapped drive everytime it starts. When finished, press the *Finish* button. TeraStation is now mapped to a drive letter.



Accessing TeraStation Data from a Mac

If your Mac does not automatically detect your TeraStation's Share folder and put it on your desktop, you will need to add the TeraStation to the Mac's server list. Begin by clicking *Go*, and then choose *Connect to Server*.



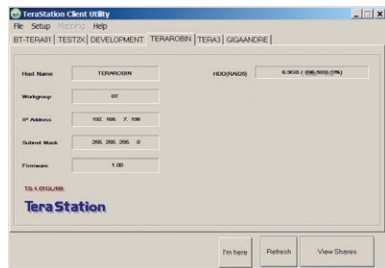
In the *Server Address* field, enter your TeraStation's IP address in the form *smb://ipaddress* (where "ipaddress" is your TeraStation's IP address), and click *Connect*.

If you don't know your TeraStation's IP address, see page 19.

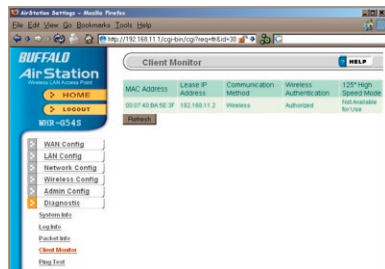
Accessing TeraStation Data from a Mac

If you don't know your TeraStation's IP address, there are several ways to get it.

One simple method is to use the TeraStation client utility (included on your CD) to find your TeraStation(s). Just click on the tab for your TeraStation and you'll be able to read its IP address. You must have a Windows PC running on the network to use the TeraStation client. See *page 66* for more on the TeraStation client utility.



If you have an all-Mac network with no Windows PCs available, you may have to get the TeraStation's IP address from your router's configuration utility. Many Buffalo routers list this information on the *Client Monitor* page, as shown to the right. Consult your router's documentation for instructions on identifying the TeraStation's IP address.



TeraStation has four USB 2.0 ports, two on the front panel and two on the rear. These ports can be used for adding external USB Hard Drives or a USB Printer. TeraStation will then share the USB devices, allowing everyone on the network to use them. Up to four external USB hard drives, or one printer and three hard drives, may be added to TeraStation. To connect a USB printer or hard drive to TeraStation, simply plug it into one of the four USB Ports.

USB Hard Drive Information:

You may plug in additional USB hard drives to any of the four USB ports on your TeraStation. See *page 34* for setting up your USB hard drive under TeraStation. See *page 38* for information on setting up shared folders on a USB Hard Drive. *Page 37* will show you how to reformat the USB Hard Drive. *Page 51* shows you how to set up TeraStation to backup to a USB Hard Drive.

USB Printer Information:

See *page 47* to set up a USB Printer as a network printer on TeraStation.

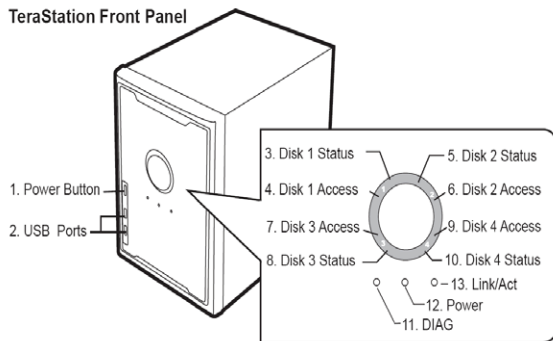
1. Power Button – Press and release the Power Button to turn the TeraStation on. Hold it down for 3 seconds to turn the TeraStation off.

2. USB Ports – USB ports on both front and rear panels of the TeraStation may be used to connect USB hard drives, a printer, or an additional TeraStation to your TeraStation. See *TeraStation Expansion* on page 20 for more information on using TeraStation's USB ports.

3. Hard Drive Status (also 5, 8, and 10) – This LED will glow green when the corresponding hard drive is detected at boot, and will blink green when a disk check or format is in process. It will glow red when the hard drive is 90% full or more, and blink red if there is a problem with the drive.

4. Hard Drive Access (also 6, 7, and 9) – This LED will blink green when the associated hard drive is accessed. During startup, it's normal for all the lights on the front panel to light up in order, producing a pinwheel effect.

TeraStation Front Panel



11. Diagnostic LED – The Diagnostic LED may flash when the TeraStation encounters an error. In this event, please contact our 24/7 technical support at (866) 752-6210 (USA & Canada only; see *page 71* for European tech support information).

12. Power – This LED glows a steady green while the TeraStation is operating normally. It blinks quickly during bootup and shutdown, and slowly while the TeraStation is in sleep mode.

13. Link/Act – This LED will glow when the TeraStation is connected to a network, and blink during normal network activity. It changes color to indicate the speed of the connection: blue for a 1000Mbps connection, green for 100Mbps, and red for a 10Mbps connection.

14. Power Socket – Plug the power cord into this socket.

15. Power Switch – This is the TeraStation's master power switch. While it is on, the power button on the front panel of the TeraStation may be used to start and shut down the unit. When this switch is off, no power goes to the unit. If this switch is left off for an extended period of time, the TeraStation's internal system clock may need to be reset.

16. Internal Fan – The internal fan will adjust its speed according to the temperature inside the TeraStation. To prevent possible overheating, keep the fan clear and clean of obstacles or dust.

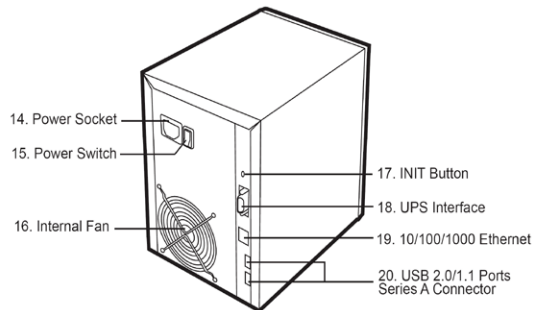
17. INIT Button – The INIT button restores your TeraStation to factory default settings. See *page 60* for more information on using the INIT button.

18. UPS interface – An Uninterruptable Power Supply can use this interface to safely shut down your TeraStation in the event of a power failure. This interface is non-LPS. DP-1, DP-1P, DP-2, or DP-2P cables may be used to connect to the UPS.

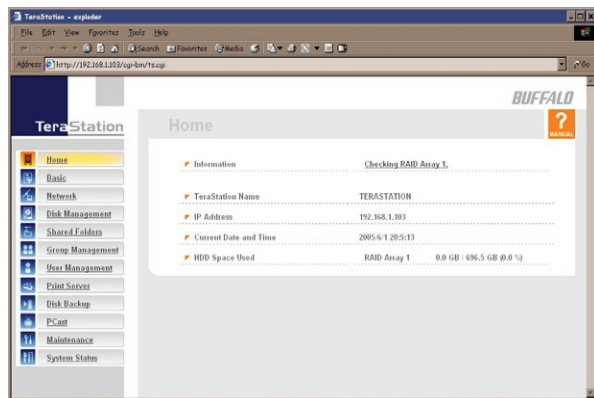
19. 10/100/100 Mbps Ethernet Port – Use this port to connect your TeraStation to a switch, a router, or another computer. The port is autosensing, so either a conventional Ethernet cable or a crossover Ethernet cable may be used.

20. USB Ports – TeraStation offers four USB 2.0/1.1 ports for adding external drives or USB printers. Please see the *TeraStation Expansion* section on page 20 to learn more about using TeraStation's USB Ports.

TeraStation Rear Panel



Browser Management Tool - Home



Welcome to *Advanced Settings*! We'll discuss the many adjustments you can make to your TeraStation. Begin by bringing up the *Browser Management* screen that you bookmarked on *page 12*. You are now at *Home*. Notice that *Home* is lit up in yellow in the screenshot to the left. You can return to this page at any time by clicking on *Home* from the menu at the left of your *Browser Management* screen. Here, you can see basic information about your TeraStation's setup. Now, click the *Basic* link from the menu on the left side of your screen.

Basic

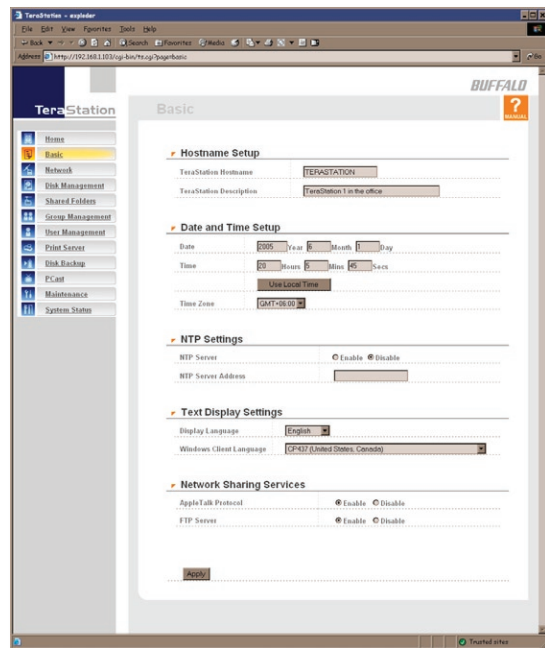
You may modify your TeraStation's hostname and description under *Hostname Setup*.

Make sure that the date and time are correct in *Date and Time Setup*. To synchronize time settings with those in your computer, press *Use Local Time*. To have your system time automatically set by an NTP server, enable *NTP Server* and enter an IP address for the NTP server.

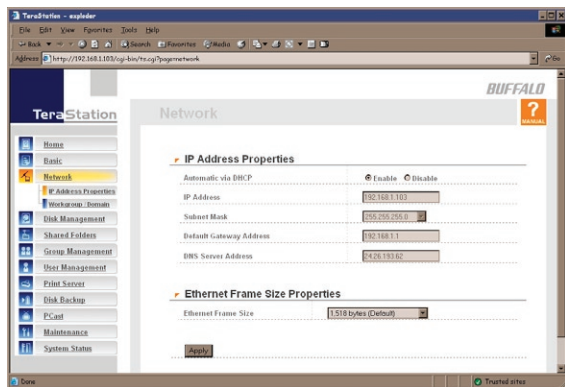
Ensure that both the *Display Language* and the *Windows Client Language* are set to languages that you're comfortable with.

If you need to access your TeraStation with FTP or AppleTalk, enable these protocols under *Network Sharing Services*.

Once desired fields have been completed, press the *Apply* button.



Network (IP Address Properties)

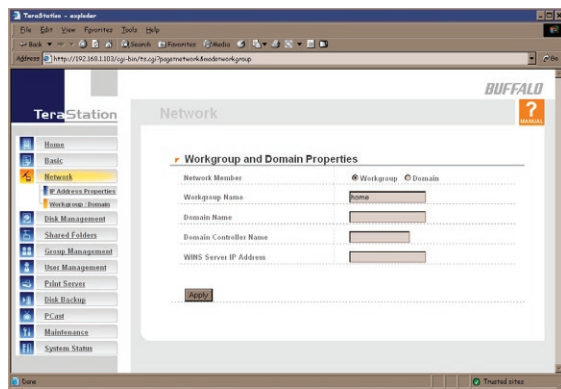


In most networks, TeraStation will get its IP address automatically from a DHCP server. You may disable DHCP here. If DHCP is disabled and an IP address is not set manually, it will default to 192.168.11.150. The TeraStation's *IP Address*, *Subnet Mask*, *Default Gateway Address*, and *DNS Server address* may all be entered manually under *IP Address Properties*.

Ethernet Frame Size may also be set manually on this page.

Click *Apply* after making any changes.

Network (Workgroup/Domain)



To make your TeraStation a member of a workgroup or domain, enter the appropriate information into the fields on this page and click *Apply*. If the TeraStation is to be part of a Windows Domain, the TeraStation should be added beforehand to the Domain Controller with a computer account in Server Manager.

Disk Management (Drive Properties)

This page shows the current properties of your hard drives and RAID Arrays. To change these settings, click on *RAID Configuration* at left.

The screenshot displays the 'Disk Management' window of a TeraStation. The left sidebar contains a navigation menu with options: Home, Tools, Network, RAID Management (selected), RAID Configuration, RAID Control, RAID Status, Shared Folders, Group Management, User Management, File Services, Disk Caching, PCart, Maintenance, and System Status. The main content area is titled 'Internal and External Drive Properties' and is divided into three sections: RAID Array Information, Disk Information, and USB Disk Information.

RAID Array Information:

RAID Array 1	Status	Checking (10.5 % Completed)
RAID Level	RAID5	
Disk Structure	Disk 1/2/3/4, 2 Disk 5, Disk 6	
Total Capacity	730,317,440 Bytes	
Amount in Use	5,629 Bytes	
Percentage in Use	0.00 %	
File Format	NTFS	

Disk Information:

Disk	Status	RAID Array 1
Disk 1	OK	WD10E000BB-224G100
Disk 2	OK	WD10E000BB-224G100
Disk 3	OK	WD10E000BB-224G100
Disk 4	OK	WD10E000BB-224G100
Disk 5	OK	WD10E000BB-224G100
Disk 6	OK	WD10E000BB-224G100

USB Disk Information:

USB Disk	Status	Information
USB Disk 1	OK	Microconnected
USB Disk 2	OK	Not Detected
USB Disk 3	OK	Not Detected
USB Disk 4	OK	Not Detected

TeraStation uses *RAID* (“Redundant Array of Independent Disks”) technology to control the four hard drives in your TeraStation. RAID may be configured several ways:

RAID Spanning - All four drives are striped into one large drive, giving the maximum capacity for your TeraStation. This size is the one listed on your TeraStation’s box and shows the total capacity of the TeraStation with no data used for redundancy. RAID Spanning is fast and efficient, but with no redundancy, if one hard drive fails, all data on the TeraStation is lost.

RAID 1 (mirroring) - Hard drives (or spanned pairs of hard drives) are arranged in mirrored pairs. Each half of the pair reads and writes exactly the same data. This costs you half the total capacity of your TeraStation, but provides excellent redundancy. If a hard drive fails, the mirror continues to supply data, so you may work on normally. You may replace the damaged or defective drive at any time, and normal RAID 1 mirroring will then be automatically restored.

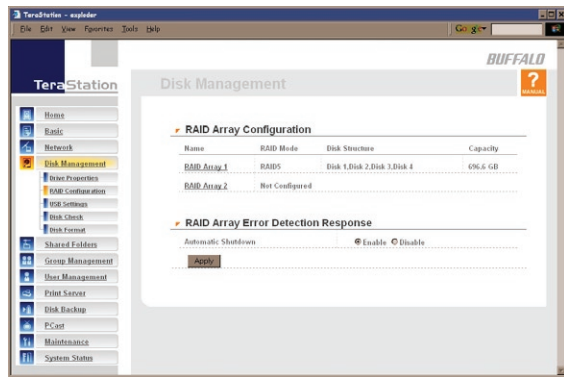
RAID 5 (parity) - All drives in a RAID 5 array reserve part of their data space for parity information, allowing all data to be recovered if a single drive fails. The parity information takes up about one hard drive’s worth of space, so if you set up all four drives in the TeraStation as a RAID 5 array, your usable capacity will be about 3/4 of the total capacity of the TeraStation. RAID 5 is an excellent compromise between efficiency and security. If a single drive fails, no data is lost. After the damaged or defective drive is replaced, your TeraStation will automatically restore all data to the new drive and resume normal RAID 5 operation. This is how your TeraStation is set up out of the box.

Buffalo Technology recommends *RAID 5* for its excellent balance of efficiency and security.

Disk Management (RAID Configuration)

This page shows your current RAID arrays. You may delete old arrays or create new ones by clicking on the underlined *RAID Array #* under *RAID Array Configuration*.

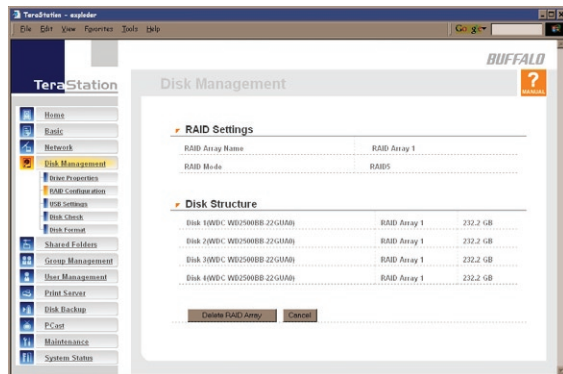
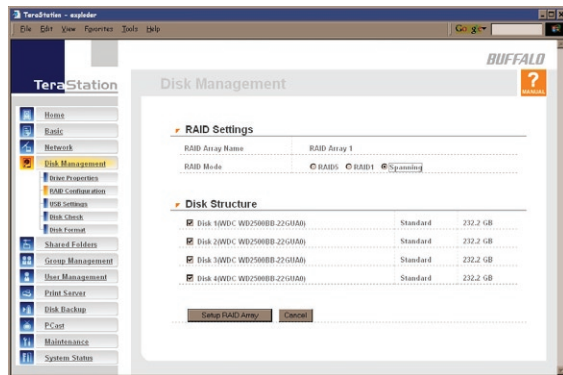
You may also disable *RAID Array Error Detection Response* from this page. Normally, this is set to automatically shut down the RAID array when an error is detected. Though it is not recommended, you may disable that behavior by clicking *Disable* and then *Apply* under *RAID Array Error Detection Response*.



Note that your TeraStation has four internal hard drives. Before creating a new RAID array, you may have to delete one or more pre-existing RAID Arrays to clear up the hard drives for your new one. This will destroy all data currently on the disks, so back up any important data before deleting RAID arrays. Whether you want to clear out an old array or create a new one, begin by clicking on the array's underlined *RAID Array #*, under *Name*.

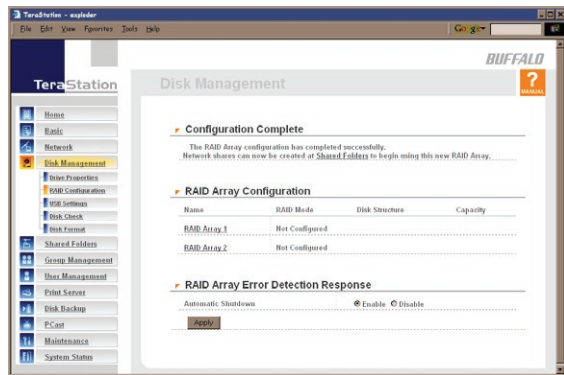
Disk Management (RAID Configuration)

A configured RAID array may be deleted by pushing the *Delete RAID Array* button. This will free up all hard drives listed under Disk Structure.



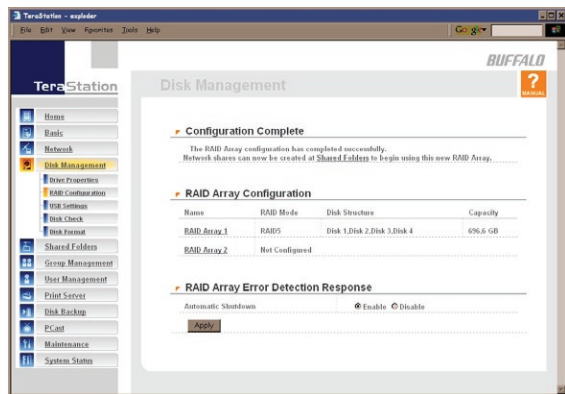
To configure an unconfigured array, put checks next to the hard disks you want included in the array (under *Disk Structure*) and choose your *RAID mode*. Click *Setup RAID Array* when ready. It may take several minutes to complete setting up the RAID array. When it's finished, a *Disk Check* will run.

Disk Management (Disk Check)



When *RAID Configuration* is done, you'll see this screen. To configure a new array, click on *RAID Array #* and go back to the bottom of *page 31*. To setup shares turn to *page 38*.

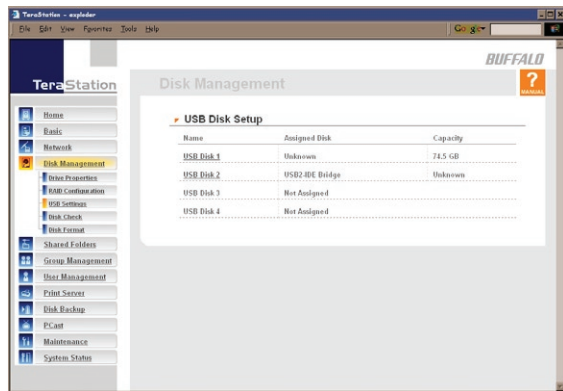
Disk Management (RAID Configuration)



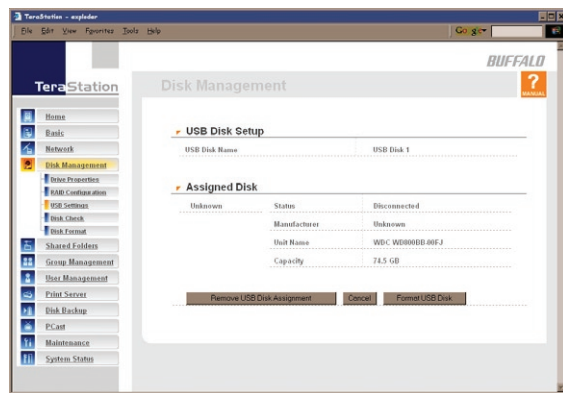
You'll see this screen when your new RAID Array is completely configured. Click on *Shared Folders* and turn to *page 38* to begin setting up shares on your TeraStation.

Disk Management (USB Settings)

If you've plugged an external USB hard drive into one of the USB ports on your TeraStation, you may set it up from this page. Click on its name under *USB Disk Setup* to begin.

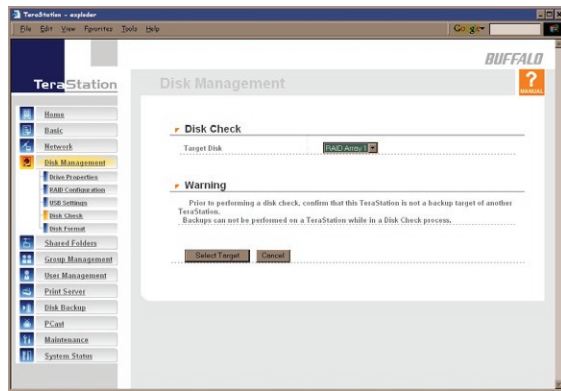


Disk Management (USB hard drive setup)



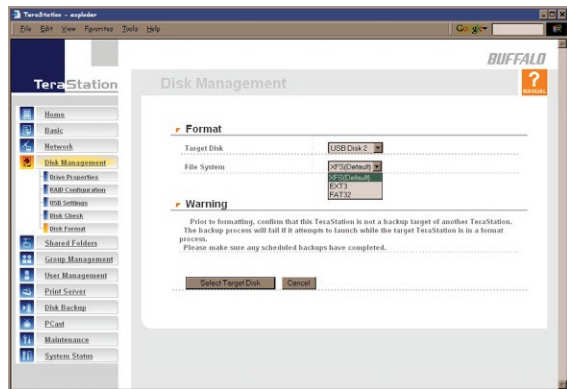
From here you can see your USB hard drive's setup information. If the hard drive's information isn't displayed properly, try restarting your USB hard drive and then restarting your TeraStation. Some USB hard drives must be reformatted from within TeraStation before they can be assigned shares. Press *Format USB Disk*, or choose *Disk Format* from the left-side menu, to begin reformatting your USB hard disk. Turn to *page 37* for more information on reformatting disks. Turn to *page 38* to set up shares on your USB hard drives.

Disk Management (Disk Check)



To initiate a comprehensive disk check on a hard drive or array of drives, select the hard drive or array that you want to check from the *Target Disk* dropbox and click the *Select Target* button.

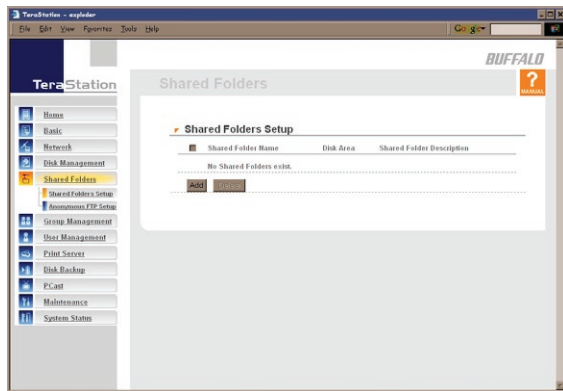
Disk Management (Disk Format)



To format a hard drive or array, select it from the *Target Disk* dropdown. Choose the file system desired from the *File System* dropdown (internal drives can only be formatted with XFS). Note that FAT32 has a 4 gigabyte file size limit. If you choose FAT32 for your file system, you will not be able to store files larger than 4 gigabytes on the drive. Buffalo Technology recommends the *XFS* file system. Press *Select Target Disk* when done.

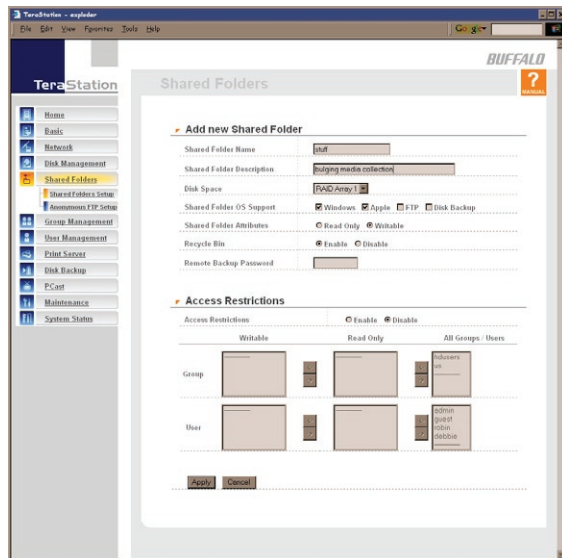
Depending on the size of the target hard disk or array, a Disk Format may take several hours to complete.

Shared Folders



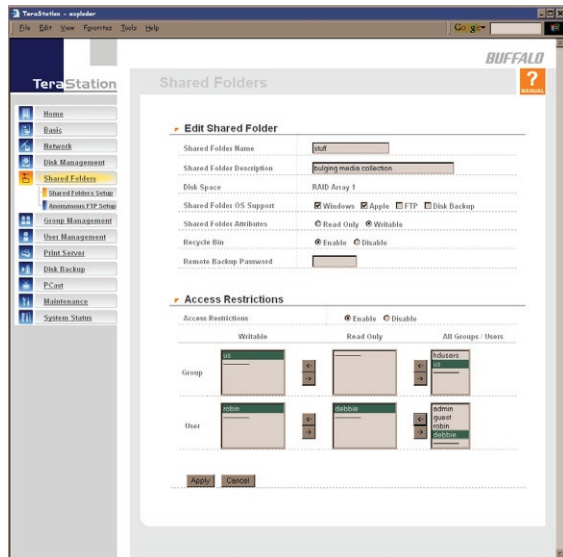
To begin setting up shares on your TeraStation, select *Shared Folders* from the left side menu, and then click the *Add* button under *Shared Folders Setup*.

Add a new Shared Folder



To add a new shared folder, enter a name for it in the *Shared Folder Name* box and choose which *Disk Space* it will reside in. You may also choose which operating systems the share will support by putting the appropriate checks next to *Shared Folder OS Support*, and whether the share supports the Recycle Bin by putting a dot next to *Enable* or *Disable*. Enter a *Shared Folder Description* and a *Remote Backup Password* if you desire. Click the *Apply* button to build the new shared folder.

Shared Folders (Access restrictions)



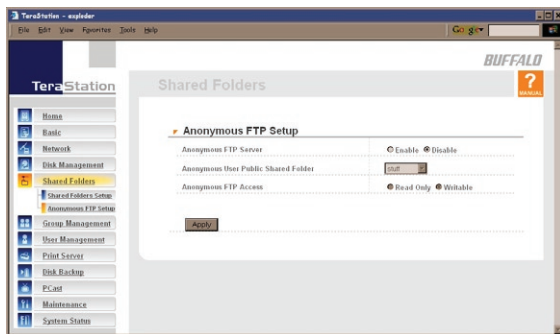
To use *Access Restrictions* for a share, put a dot next to *Enable*.

Highlight groups or users in the *All Groups/ Users* column and use the left-pointing arrow buttons (located just to the left of each box) to move individual groups or users from the *All Groups/ Users* column to the *Read Only* box (if you want to give them read access only) or all the way to the *Writable* box, if you want to give them full access to the share. Right-pointing arrows will move highlighted users or groups back to the right.

Click *Apply* when you have your groups and users in the appropriate boxes.

To set up new groups and users, see *pages 42 and 43*.

Shared Folders (Anonymous FTP Setup)

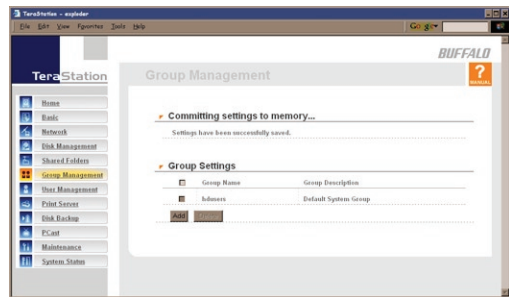


To allow Anonymous FTP, choose *Enable* for *Anonymous FTP Server*. Select a folder to share from the *Anonymous User Public Shared Folder* (only one folder may be shared by anonymous FTP) and choose whether you want the share to be *Writable* or *Read Only*. Click the *Apply* button to set up anonymous FTP.

If *FTP Server* is disabled in the *Basic* window, this page will not be accessible.

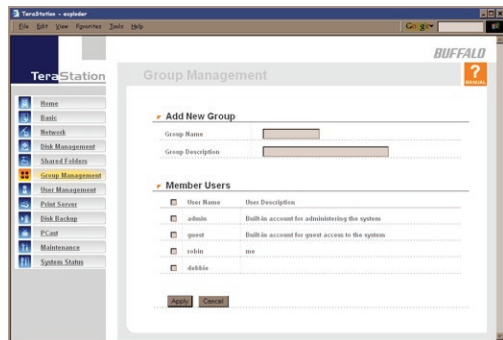
Anonymous FTP mode uses port 8021 (e.g. *ftp://IP Address:8021*).

Group Management

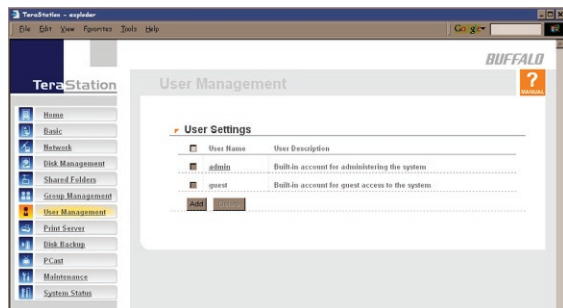


To *Delete* a group, put a check next to its name and click *Delete*. To add a group to your TeraStation, click *Add*.

Add a name and a description to the *Add New Group* fields. Put checks next to each *Member User* that you want to be part of the group. Click *Apply* when your group is set up the way you want it.

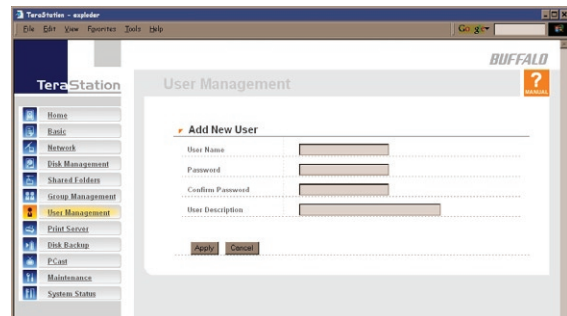


User Management

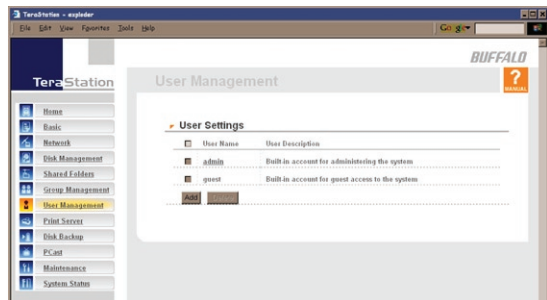


TeraStation is preconfigured with two users, *admin* and *guest*, out of the box. The *guest* account allows network users login access so that they can clear the print queue. It has no password. The *admin* and *guest* user accounts cannot be deleted. To delete any other user, put a check next to their name and click *Delete*. To add a new user, click *Add*.

The *Add New User* dialog will appear. Enter a *User Name*, *Password*, and *User Description* for the new user and click the *Apply* button. If a user will be accessing the TeraStation from a Windows 95/98 computer, their password should be 15 characters or less. Mac users's passwords should be 9 characters or less.

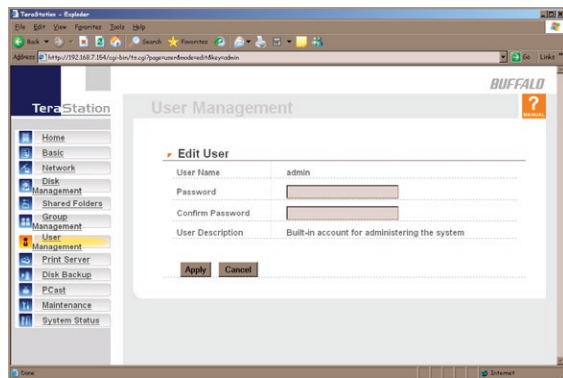


User Management (changing passwords)

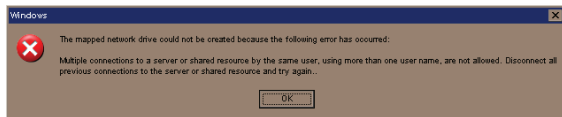


To change an account's password, click on the name of the account under *User Settings*. Note: if a *user name and password* are used to log into user's windows computer or domain, the same *user name and password* should be used when creating the user's account on the TeraStation, or problems accessing shared folders may occur.

Enter the desired new password in both boxes and click *Apply*.



Troubleshooting Multiple Shares

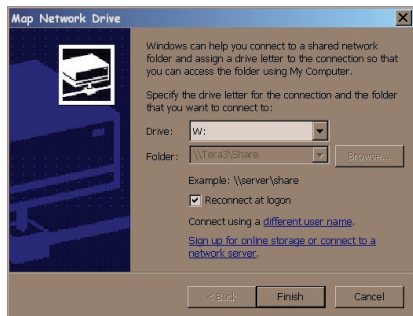


When adding multiple shares, you may see this error message.

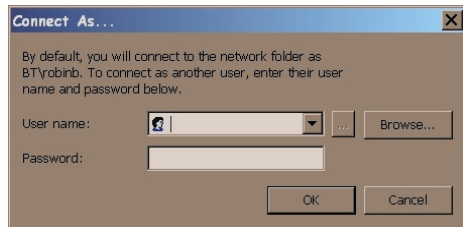
This is caused by having multiple shares to the same resource using different credentials. The

error occurs when connecting to at least one secure, restricted share. Due to a constraint in Microsoft Windows, only one set of credentials can map drive letters for a network resource such as the TeraStation. As such, only one username and password can be used while mapping a drive. If unsecure, unrestricted shares are mapped and then an attempt to map a secure, restricted share occurs, then this error will occur. To prevent this, you must create all mapped shares using the same login and password information. Please follow the steps on the next page to remedy this problem.

Mapping Multiple Shares

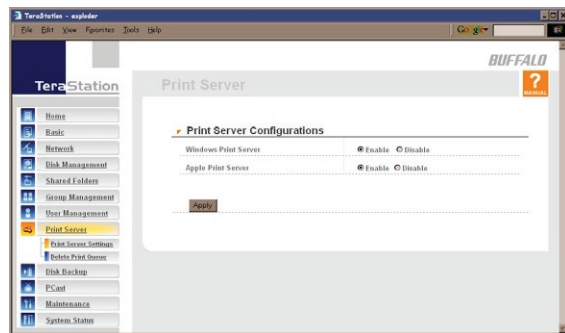


When mapping any share, select the *Connect using a different user name* option. A login and password prompt will appear. Use the username and password required by any secure, restricted shares for *all* shares. All mapped shares must use the same username and password!



If only unrestricted shares are being mapped, then it's not necessary to set a username and password for shares. Multiple mapped drives to unrestricted shares can exist without a username or password as long as no restricted, secure shares are mapped.

Print Server (Settings)



A USB printer, plugged into a USB port on either the front or the rear of your TeraStation, may be used as a *Windows Print Server* and/or an *Apple Print Server* on your network by choosing *Enable* on this page as appropriate and then clicking *Apply*.

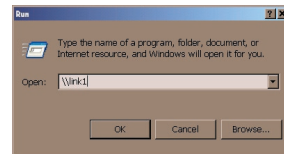
TeraStation supports most PostScript printers. It doesn't support bi-directional printers.

Non-PostScript printers are *not supported* by Buffalo. You may be able to get enough information from a printer's documentation to get it to work, but our technical support cannot help you with this.

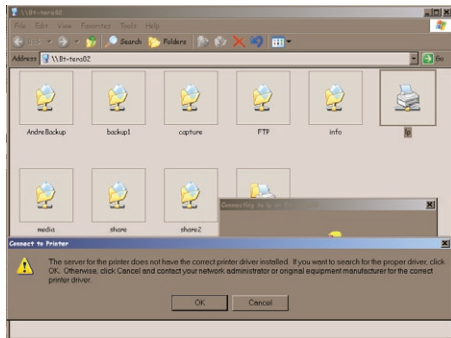
Print Server - Printer Share Installation

If TeraStation is set up to share your printer (*page 47*), you can easily add the printer to any Windows PC on your network. Follow these steps for each PC that you want to be able to access the printer.

Access the TeraStation by pressing *Start*, selecting the *Run...* option, and entering `\\TeraStation_Name` (where *TeraStation_Name* is the name you set on *Page 13*). Press the *OK* button when finished.

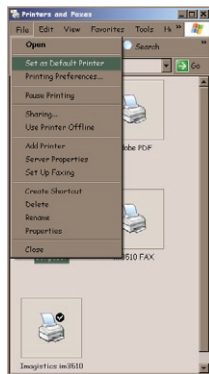


Right click on the *lp* icon and select *Connect*. You'll receive a warning that the server doesn't have the proper drivers. Press the *OK* button to continue.

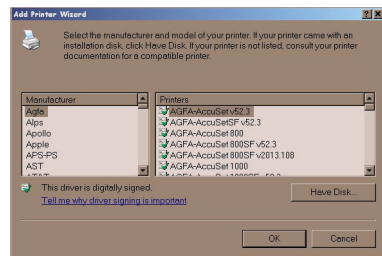


Print Server - Printer Share Installation (continued)

The *Add Printer Wizard* will launch. Select the proper driver for your printer. If your printer is not in the list, you'll have to insert the CD that came with your printer into your PC's CD-ROM drive and press the *Have Disk* button. Refer to your printer documentation for further information on installing your printer if necessary. Press *OK* to finish.



If *lp* is the only printer installed on the PC, then it will automatically be set as the default printer. If it's not the only printer, you may make it the default printer by clicking *Printers and Faxes* in Control Panel, right clicking on the *lp* printer icon and selecting the *Set as Default Printer* option from the *File* drop-down menu.



Print Server (Delete Print Queue)



If a corrupt print job is sent to a printer, printing may suddenly fail. If your print jobs seem to be locked up, clearing the print queue may resolve the issue.

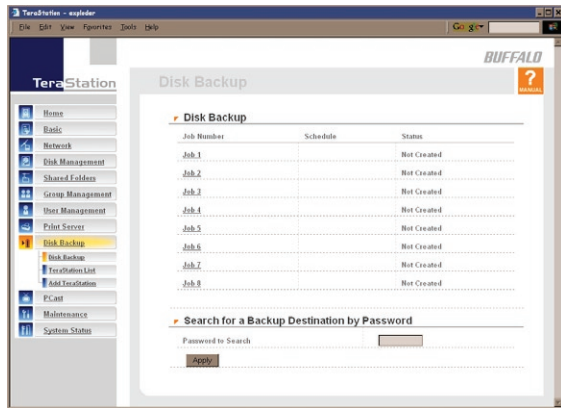
To execute the Delete Print Queue program, press the Delete button. This will clear all current print jobs. Users will have to re-send any incomplete print jobs to the printer.

If there are still problems printing to the printer, then check the printer manufacturer's documentation for troubleshooting information. Also, verify that the USB cable is securely fastened to both the printer and the

TeraStation. Finally, you may try turning the TeraStation off, turning the printer off, turning the printer back on, and then turning the TeraStation back on again.

Note that if a multi-function (all-in-one) printer is attached to the TeraStation, usually only the printing and fax functions will work. Other features, such as scanning, probably will not function.

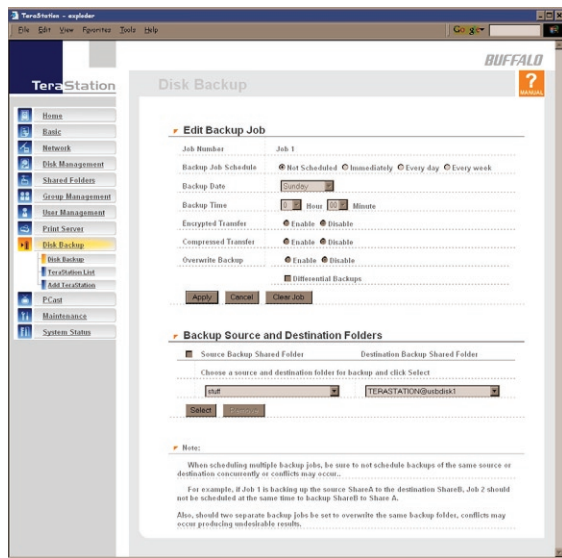
Disk Backup



To create a backup job, click on an underlined *Job Number*. The *Edit Backup Job* dialog will appear.

If the *Disk Sleep* function is enabled, disable it (*page 58*) before creating a backup job.

Disk Backup (Edit Backup Job)

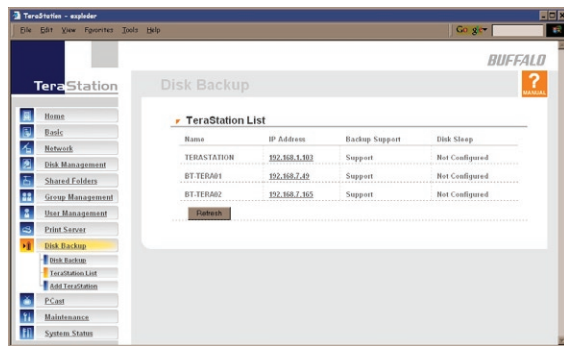


A *Backup Job* can run regularly on a daily or weekly schedule, or immediately by appropriate choices in the *Backup Job Schedule* field. *Date* and *Time* for the backup may be entered, and *Encryption* and *Compression* enabled or disabled. Enable *Overwrite Backup* to have each scheduled backup write over the previous backup, or *Differential Backups* to backup only files changed since the previous backup.

Select the folder to be backed up from the *Source Backup Shared Folder* dropdown, and the destination for the backup files from the *Destination Backup Shared Folder* dropdown. The destination folder may be on a USB drive attached to the TeraStation, or another TeraStation on the network. Click on *Select*.

Click the *Apply* button when your backup job is set up the way you want it, or *Clear Job* to stop a job from running again.

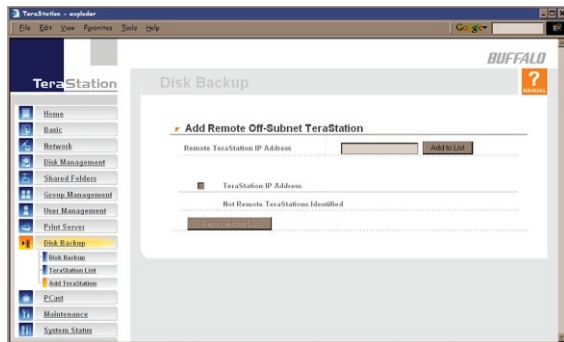
Disk Backup (TeraStation List)



Press *Refresh* to get a list of TeraStations on your network.

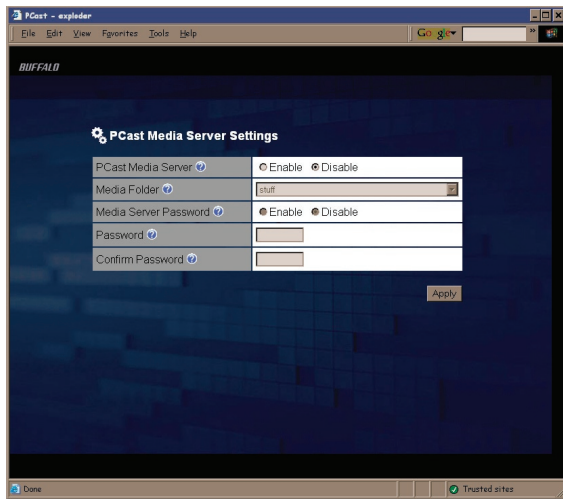
Note: Disk Backups between two TeraStations use port 8873 for encrypted backups and port 873 for backups with no encryption.

Disk Backup (Add TeraStation)



To add a TeraStation to your network, enter its numerical IP address in the *Remote TeraStation IP Address* field and click the *Add to List* button.

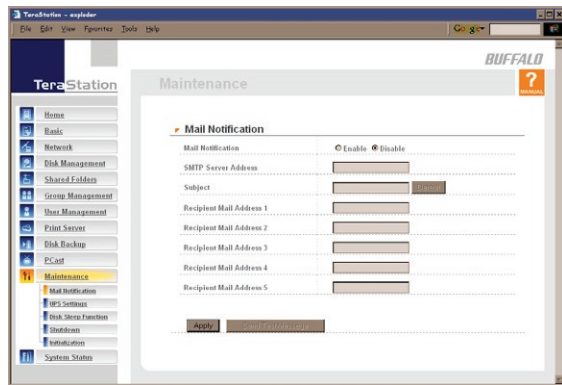
PCast



Clicking on *PCast* on the left-side menu takes you to this page. Use this field to set a share on your TeraStation as the media folder for your LinkTheater. Choose *Enable* for *PCast Media Server* and choose the share where you keep your media files as the *Media Folder*. If you choose to *Enable* a password, pick one that you can easily enter with your LinkTheater's remote control.

If you don't have a LinkTheater, you can ignore this page.

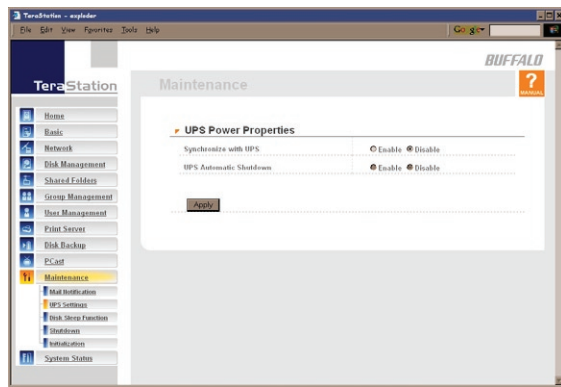
Maintenance (Notification)



If your TeraStation is remotely managed, you may choose to receive nightly status reports and be notified of any disk events by email. To set this up, enable *Mail Notification* and enter the IP address of your SMTP server* in the *SMTP Server Address* field. Select a *Subject* line for the emails (i.e. “TeraStation report”) and enter the email address of each person you want to receive notification emails into a *Recipient Mail Address* field.

* SMTP server must be of *open* type. There’s no provision for entering a username or password.

Maintenance (UPS Settings)



You may enable *Synchronizes with UPS* and *UPS Automatic Shutdown* from this page. Consult your Uninterruptable Power Supply's documentation for further information about setting up your UPS system.

TeraStation's UPS interface is serial. USB-type UPS interfaces are not currently supported. See the next page for more information on TeraStation's UPS interface.

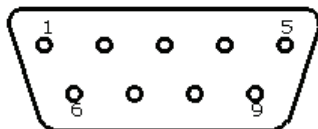
Maintenance (UPS Settings)

UPS / Maintenance port

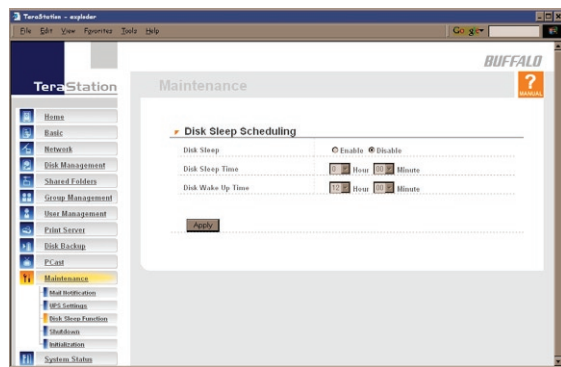
This is TeraStation's serial port pin assignment for serial UPS products.

Connector Pin Assignment.

Pin	Signal	Description
1	NC	NC
2	RXD	APC_Line_Fail
3	TXD	APC_UPS_Shutdown
4	NC	OMR_UPS_Shutdown
5	GND	GND
6	NC	NC
7	NC	+12V
8	NC	OMR_Line_Fail
9	NC	NC

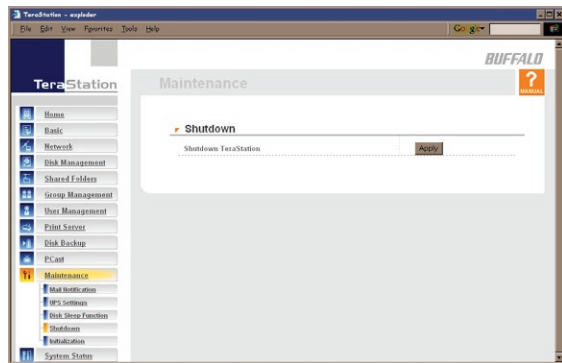


Maintenance (Disk Sleep Function)



If there are regular periods when your TeraStation is not in use, you may want to schedule disk sleeping. Enable *Disk Sleep*, select the time that you want to initiate sleep mode, and select the time that you want the TeraStation to “wake up” and resume normal operation. Click *Apply*. To avoid conflicts, do not use the *Disk Sleep Function* concurrently with *Disk Backup*.

Maintenance (Shutdown)



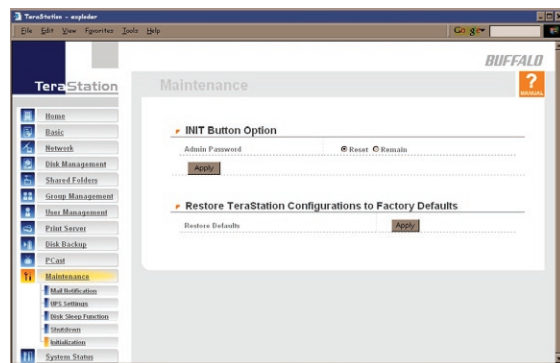
From the *Shutdown* page, press *Apply* to shutdown TeraStation. This has the same function as holding down the power button on the front of TeraStation, but may be done remotely.

Maintenance (Initialization)

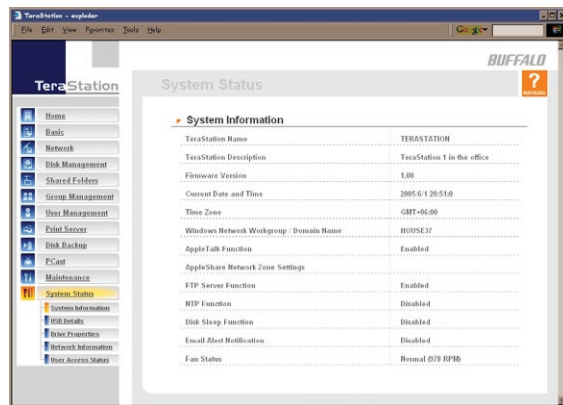


The *INIT* button on the rear of your TeraStation normally returns the TeraStation to factory settings when held down for 15 seconds. This affects Admin Password, Ethernet Frame Size, and IP Address. If the *Remain* option has been selected on the screen below, then the Admin Password will not be reset when the INIT button is held down.

Pressing *Apply* for *Restore Defaults* from *Maintenance/Initialization* resets Admin Password, Hostname, TeraStation Description, NTP Settings, Workgroup Settings, Access Restrictions, User Settings, Group Settings, Mail Notifications, UPS Settings, Disk Sleep, and Disk Backup. If you select the *Remain* option for *Admin Password* and then click *Apply*, the admin password will no longer be reset when the INIT button on the TeraStation is held down.



System Status (System Information)

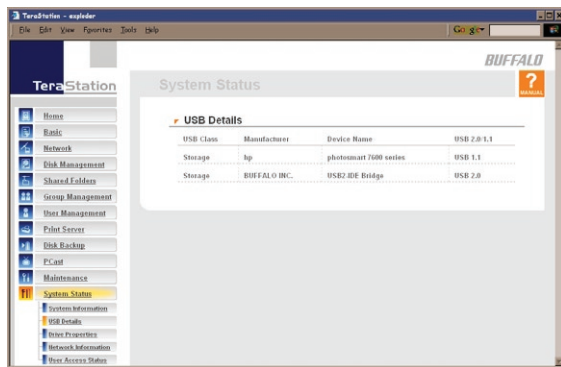


The screenshot shows the TeraStation web interface. The left sidebar contains a navigation menu with options: Home, Basic, Network, Disk Management, Shared Folders, Group Management, User Management, Print Server, Disk Backup, PCast, Maintenance, and System Status (highlighted). Under System Status, there are sub-links: System Information, USB Details, Drive Properties, Network Information, and User Access Status. The main content area is titled 'System Status' and features a 'System Information' section with a table of system details. The Buffalo logo is visible in the top right corner of the interface.

System Information	
TeraStation Name	TERASTATION
TeraStation Description	TeraStation 1 in the office
Firmware Version	1.00
Current Date and Time	2005/6/1 20:51:0
Time Zone	GMT+06:00
Windows Network Workgroup / Domain Name	HOUSE37
AppleTalk Function	Enabled
AppleShare Network Zone Settings	
FTP Server Function	Enabled
HTTP Function	Disabled
Disk Sleep Function	Disabled
Email Alert Notification	Disabled
Fan Status	Normal (57.8 RPM)

This page shows you the System Information for your TeraStation.

System Status (USB Details)



This page shows you details on USB hard drives and printers plugged into your TeraStation.

System Status (Drive Properties)

This page shows you the properties of all hard drives and RAID arrays in and attached to your TeraStation.

The screenshot displays the 'System Status' window of a TeraStation. The left sidebar contains a navigation menu with options like Home, Basic, Network, Disk Management, Shared Folder, Group Management, Task Saver, Disk Backup, e-Card, Maintenance, and System Status (which is highlighted). The main content area is titled 'Internal and External Drive Properties' and is divided into two sections: 'RAID Array Information' and 'Disk Information'.

RAID Array Information:

RAID Array 1	Status	Checking (9.3 % Completed)
RAID mode	RAID5	
Disk Structure	Disk 1, Disk 2, Disk 3, Disk 4	
Total Capacity	7,807,200 Bytes	
Assured in this	4,900 Bytes	
Parity/Spares in this	0.00 %	
File Format	NTFS	

Below this, 'RAID Array 2' is listed with a status of 'Not Configured'.

Disk Information:

Disk 1	Status	RAID Array 1
Chain Name	WDC WD2000BB-22A000	
Total Capacity	20,000,000,000 Bytes	

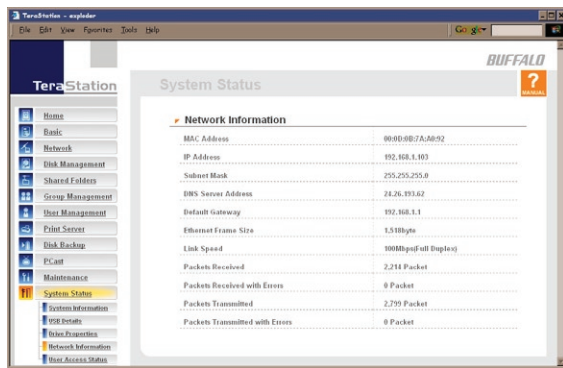
Similar information is provided for Disk 2, Disk 3, and Disk 4, all showing they are part of RAID Array 1 with the same chain name and capacity.

USD Disk Information:

USD Disk 1	Manufacturer	Unknown
Model Name	Unknown	
Disk Name	00C:000000000000	
Total Capacity	78,000,000 Bytes	
File Format	Not Detected	

Similar information is provided for USD Disk 2, showing a manufacturer of 'BUFAIDIO INC.' and a model name of 'BUFAIDIO 000000'.

System Status (Network Information)

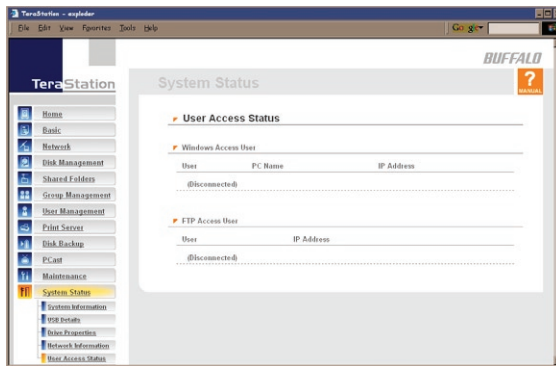


The screenshot shows the TeraStation web interface. The left sidebar contains a menu with options: Home, Basic, Network, Disk Management, Shared Folders, Group Management, User Management, Print Server, Disk Backup, PCant, Maintenance, and System Status (highlighted). Under System Status, there are sub-links: System Information, Network Information (selected), and User Access Status. The main content area is titled 'System Status' and features a 'BUFFALO' logo with a help icon. Below this is a section for 'Network Information' containing a table of network details.

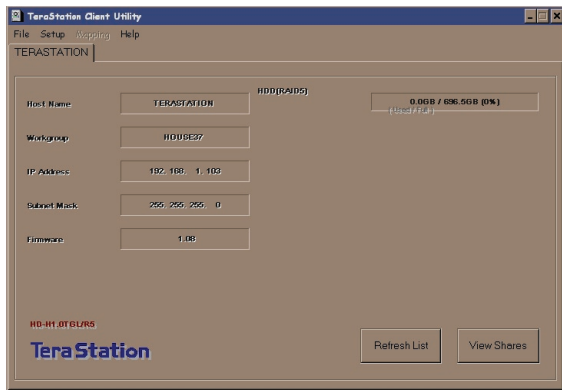
Network Information	
MAC Address	00:00:00:7A:AB:92
IP Address	192.168.1.103
Subnet Mask	255.255.255.0
DNS Server Address	24.26.293.62
Default Gateway	192.168.1.1
Ethernet Frame Size	1518bytes
Link Speed	100Mbps(full Duplex)
Packets Received	2,214 Packet
Packets Received with Errors	0 Packet
Packets Transmitted	2,799 Packet
Packets Transmitted with Errors	0 Packet

This page shows you the System Information for your network connection.

User Access Status



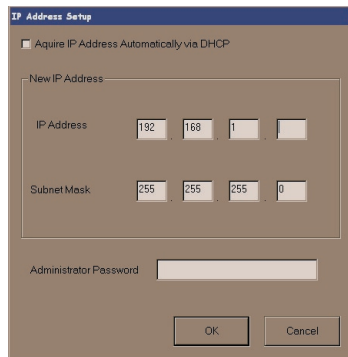
This page shows you the current status of all users on the system.



This is the *TeraStation Client Utility*. Installed on your PC, it allows you to access each of the TeraStations on your network. Click *Refresh List* to get tabs for each of your TeraStations. Each tab shows the Host Name, Workgroup, IP Address, and Subnet Mask of the associated TeraStation, as well as the version of firmware it's running.

With a TeraStation's tab selected, you can click on the *View Shares* button to go directly to its root share. Clicking the *Setup* pulldown menu and selecting *Browser Management* takes you to the browser management tool that we began exploring on *page 24*. And clicking *Setup* and choosing *Modify IP Address* takes you to the following screen . . .

IP Address Setup



The image shows a 'IP Address Setup' dialog box. At the top, there is a checkbox labeled 'Acquire IP Address Automatically via DHCP'. Below this, a section titled 'New IP Address' contains two rows of input fields. The first row is for the 'IP Address' and contains four boxes with the values '192', '168', '1', and an empty box. The second row is for the 'Subnet Mask' and contains four boxes with the values '255', '255', '255', and '0'. Below these fields is a text box for 'Administrator Password'. At the bottom right are 'OK' and 'Cancel' buttons.

IP Address Setup				
<input type="checkbox"/> Acquire IP Address Automatically via DHCP				
New IP Address				
IP Address	192	168	1	
Subnet Mask	255	255	255	0
Administrator Password				
OK		Cancel		

Here, you may enter your *IP address* and *Subnet Mask* manually, or enable your TeraStation to acquire them automatically from a DHCP server. You'll need the administrator password to use this screen. Press *OK* when you're done.

If TeraStation encounters a disk error, it will be reported in the *TeraStation status* on the top of any of the Web-Based configuration screens. Run a *Disk Scan* in the event of this error. If that still does not resolve the problem, a *Format* is recommended. Formatting the drive will delete all of the data on it, so back up any data you can before formatting (if possible). Finally, if none of the above solutions help, please contact Technical Support (see pages 79 and 80 for contact information).

DIAG LED codes:

One blink every second: RAID array is operating normally

One blink every four seconds: RAID error

Four blinks every four seconds: Internal fan error

Five blinks every four seconds: Flash ROM error

Six blinks every four seconds: Hard drive error

Seven blinks every four seconds: RAM, LAN, or HDD controller error (motherboard)

Should a Hard Drive Fail:

When using RAID1 or RAID5 - The failed drive will have a red light blinking in the STATUS/FULL position of the front display. If you need to determine which drive has failed, restart the TeraStation and watch which disk LED illuminates red. After replacing the failed drive, RAID will restore your array.

When using Standard Mode - The failed drive will have a red light blinking in the STATUS/FULL position of the front display. To determine which drive has failed, restart the TeraStation and watch which Disk LED illuminates red. After replacing the failed drive, all data on that drive will be lost. Data on other drives should still be normally accessible.

When using Spanning Mode - All drives will have a red light blinking in the STATUS/FULL position of the front display. Further troubleshooting will be required to determine which drive has failed in the array. Data recovery is not possible by replacing a drive. After replacing the failed drive, you will have to delete and recreate your RAID array to make the TeraStation usable again. All data on the array will be lost.

If your TeraStation is still under warranty, contact tech support before replacing your hard drive. Replacing your hard drive yourself may void your warranty. If your warranty has expired, you may replace the hard drive with an exact replacement (available from Buffalo Technology), or with any IDE drive of at least the same capacity as the failed hard drive.

Replacing a Hard Drive

If a STATUS/FULL led is blinking, note the drive number before continuing. Use a clean, padded work area to disassemble your TeraStation. You'll need a #2 phillips screwdriver. You will be removing and replacing a total of 22 screws to replace a hard drive, so keep each screw that you remove carefully in a safe place. Be careful not to drop the TeraStation, or cut yourself on sharp interior metal parts. Buffalo Technology is not responsible for any damage that you do to yourself or your TeraStation while changing out a hard drive! Be careful.

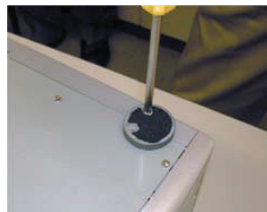
- 1 Remove all cables and place the unit on its top, exposing the four rubber feet.



- 2 Remove the rubber feet. Each foot is held in place by one screw.



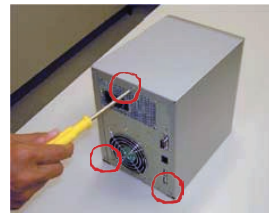
M3 Screw 6mm



- 3** Remove the 3 screws from the rear panel as shown.



M3 Screw 4mm



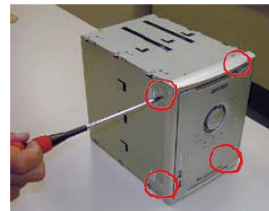
- 4** Remove the cover by sliding it towards the rear of the TeraStation.



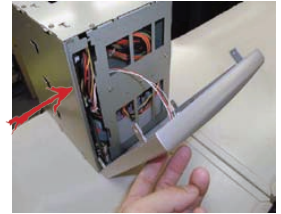
- 5** Remove the front panel by removing the 4 screws on the sides of the TeraStation that hold it in place.



M2.5 Screw 2.5mm



6 Unplug and detach the LED cable at the point indicated.



7 Remove the three screws from the side panel.



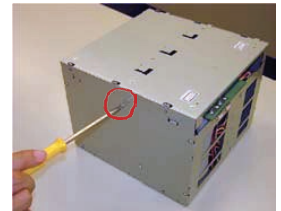
M3 Screw 4mm



8 Remove the indicated screw from the base panel.



M3 Screw 6mm



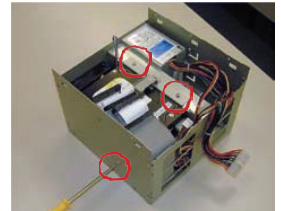
9 The side panel can be opened towards the front of the TeraStation.



10 Unplug the power and hard drive cables from the motherboard.

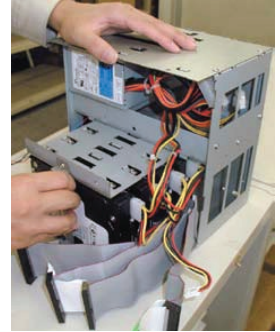


11 Remove the three screws as indicated from the hard drive chassis.



M3 Screw 4mm

- 12** Place the TeraStation on its base and slide out the hard drive chassis.



- 13** Remove the power plugs from all four hard drives.

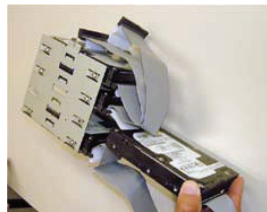
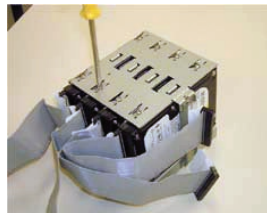


- 14** Remove the 4 screws from the sides of the failed hard drive. Note that the hard drive chassis is marked with numbers corresponding to the drive numbers on the front display.



4mm HD screw (note that the threads are coarser than the M3 screws; please do not get them mixed up!)

- 15** Remove the failed hard drive from the chassis.



- 16** Install the replacement hard drive.



- 17** Reassembly is the reverse of disassembly.
- 18** Reconnect cables and power to your TeraStation.
- 19** Log in to the TeraStation's web-based configuration tool.
- 20** Click the error link on the first page of the management interface.
- 21** Follow the steps shown in the manager to rebuild the RAID Array.

The TeraStation should now be back in the state it was prior to the hard drive failure. If you were using RAID 5 or RAID 1, your data should be restored.

LAN Standards:	IEEE 802.3u 100BASE-TX; IEEE 802.3 10BASE-T
Transmission Types:	1000Mbps/100Mbps/10Mbps; 100BASE-TX 4B/5B, MLT-3;10BASE-T Manchester Coding
Access Media:	CSMA/CD
Media Interface:	RJ-45
USB Standard:	USB 2.0 Hi-Speed (HS) Full-Speed (FS) Low-Speed (LS)
USB Connector:	USB A Connector (4)
Data Transmission Speed:	Max: 480 Mbps (HS Mode) Max: 12 Mbps (FS Mode)
UPS:	UPS Compatible (Serial port connection)
Power Consumption:	17W Maximum
Dimensions:	6.6" x 8.7" x 9.5" (168 x 221 x 241 mm.)
Weight:	15.8 lb. (7.2 kg.)
Operating Environment:	32° - 95° F; 20-80% non-condensing

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Technical Support Operating Hours

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